Claims

1. Touch-sensitive input device with

   a. a first plate (10) with a first conductive coating (11) on which are provided opposing first and second bus conductors (12, 13; 112, 113) and

   b. a second plate (20) with a second conductive coating (21) on which are provided opposing third and fourth bus conductors (22, 23; 122, 123),

   c. whereby the plates (10, 20) are arranged on top of each other at a distance from each other in such a way that the conductive coatings (11, 21) are facing each other,

   d. a first measuring device (32) which applies a reference signal to the bus conductors (12, 13; 112, 113) of the first plate (10) and determines a first measured value resulting from the first conductive coating,

   e. a second measuring device (33), which applies a reference signal to the bus conductors (22, 23; 122, 123) of the second plate (20) and determines a second measured value resulting from the second conductive coating second measured value, and

   f. a monitoring device (34),

      i. to which the measuring devices transmit the first and the second measured value,

      ii . which stores the transmitted measured values in a memory (35),

      iii. compares the measured values with each other, and

      iv. which, on the basis of deviations determined from the comparison, determines and signals a malfunction of the input device.

2. Touch-sensitive input device according to claim 1, characterised in that the plates (10, 20) are arranged in such a way that the first and second bus conductors (12, 13) are arranged in a first coordinate direction (X) and the third and fourth bus conductors (22, 23) are arranged in a second coordinate direction (Y) and that an evaluation device (30) is provided to determine a point of contact in the areas

defined by conductive coatings which is connected via connecting leads (14, 15, 24, 25) which is connected to the first to fourth bus conductors (12, 13, 22, 23) respectively in order to determine a point of contact in the area defined by conductive coatings.

3. Touch-sensitive input device according to claim 1, characterised in that on the second plate (20), fifth and sixth bus conductors (126, 127) are arranged in a first coordinate direction (X) and the third and fourth bus conductors are arranged in a second coordinate direction (Y) and that an evaluation device (30) is provided for the determination of a point of contact in the area defined by conductive coatings, which is connected via connecting leads (114, 115, 124, 125, 128, 129) to the third to sixth (123, 124, 126, 127) and with the first or second bus conductor (112, 113) respectively.

4. Device according to claim 1, 2 or 3, characterised in that the first and the second measuring device (32, 33) are combined to form one measuring device which alternatively performs the measurement at the conductive coating of the first or the second plate (10, 20).

5. Device according to any one of claims 1 to 4, characterised in that the first or second measuring device (32, 33) are integrated in the monitoring device (34).

6. Device according to any one of claims 1 to 5, characterised in that the monitoring device (34) is integrated in the evaluation device (30').

7. Device according to any one of claims 1 to 6, characterised in that the first and/or second measuring device (32, 33) applies as a reference signal a voltage to the first and second or the third and fourth bus conductors (12, 13 22, 23; 112, 113 122, 123) and determines the current established as a measured value.

8. Device according to any one of claims 1 to 6, characterised in that the first and/or second measuring device (32, 33) stores as a reference signal a current in the first and second or the third and fourth bus conductors (12, 13, 22, 23; 112, 113 122, 123) and determines the voltage established as a measured value.

9. Device according to any one of the preceding claims, characterised in that the monitoring device (34) accesses measured values stored a short period ago in order to detect short-term malfunctions and/or accesses measured values stored a longer period ago in order to identify long-term malfunctions.

10. Device according to any one of the preceding claims, characterised in that the monitoring device (34) deletes measured values stored before a predetermined time from the memory in order to release the corresponding memory area for the storage of new measured values and/or overwrites measured values of this type with new measured values.

11. Device according to any one of the preceding claims, characterised in that a correction device (37) is provided to which are fed an output signal from the evaluation device (30) and an output signal from the monitoring device (34) signalling a malfunction and which, on the basis of measured values stored in the memory (35), corrects the output signal from the evaluation device (30) and outputs a corrected output signal.

12. Device according to any one of the preceding claims, characterised in that the measuring devices (32, 33) emit a signal at an output (32a, 33a) which is fed to the evaluation device (30) and which causes the evaluation device (30) to interrupt the determination of the point of contact in the area defined by conductive coatings.

13. Device according to any one of the preceding claims, characterised in that the memory (35) is a non-volatile memory.

14. Fault detection device

for a touch-sensitive input device with a first plate (10) with a first conductive coating (11) on which are provided opposing first and second bus conductors (12, 13; 112, 113) and a second plate (20) with a second conductive coating (21) on which are provided opposing third and fourth bus conductors (22, 23; 122, 123), whereby the plates (10, 20) are arranged on top of each other at a distance in such a way that the conductive coatings (11, 21) are facing each other,

with

a. a first measuring device (32) which is configured for the application of a reference signal to the bus conductors (12, 13; 112, 113) on the first plate (10) and for the determination of a first measuring value resulting from the first conductive coating,

b. a second measuring device (33) which is configured for the application of a reference signal to the bus conductors (22, 23; 122, 123) on the second plate (20) and for the determination of a second measuring value resulting from the second conductive coating, and

c. a monitoring device (34),

i. to which the measuring devices transmit the first and the second measured value,

ii. which stores the transmitted measured values in a memory (35),

iii. compares the measured values with each other, and

iv. which, on the basis of deviations determined from the comparison, determines and signals a malfunction of the input device.

15. Fault detection device according to claim 14, characterised in that the first and the second measuring device (32, 33) are combined to form one measuring device which alternatively performs the measurement at the conductive coating of the first or the second plate (10, 20).

16. Fault detection device according to claim 14 or 15, characterised in that the first or second measuring device (32, 33) are integrated in the monitoring device (34).

17. Fault detection device according to claim 14, 15 or 16, characterised in that the monitoring device (34) is integrated in the evaluation device (30').

18. Fault detection device according to any one of claims 14 to 17, characterised in that the first and/or second measuring device (32, 33) applies as a reference signal a voltage to the first and second or the third and fourth bus conductors (12, 13 22, 23; 112, 113 122, 123) and determines the current established as a measured value.

19. Fault detection device according to any one of claims 14 to 17, characterised in that the first and/or second measuring device (32, 33) stores as a reference signal a current in the first and second or the third and fourth bus conductors (12, 13 22, 23; 112, 113 122, 123) and determines the voltage established as a measured value.

20. Fault detection device according to any one of the preceding claims 14 to 19, characterised in that the monitoring device (34) accesses measured values stored a short period ago in order to detect short-term malfunctions and/or accesses measured values stored a longer period ago in order to identify long-term malfunctions.

21. Fault detection device according to any one of the preceding claims 14 to 20, characterised in that the monitoring device (34) deletes measured values stored before a predetermined time from the memory in order to release the corresponding memory area for the storage of new measured values and/or overwrites measured values of this type with new measured values.

22. Fault detection device according to any one of the preceding claims 14 to 21, characterised in that a correction device (37) is provided to which are fed an output signal from the evaluation device (30) and an output signal from the monitoring device (34) signalling a malfunction and which, on the basis of measured values stored in the memory (35), corrects the output signal from the evaluation device (30) and outputs a corrected output signal.

23. Fault detection device according to any one of the preceding claims 14 to 22, characterised in that the measuring devices (32, 33) emit a signal at an output (32a, 33a) which is fed to the evaluation device (30) and which causes the evaluation device (30) to interrupt the determination of the point of contact in the area defined by conductive coatings.

24. Fault detection device according to any one of the preceding claims 14 to 23, characterised in that the memory (35) is a non-volatile memory.